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ABSTRACT

Originally designed for inner city children, ages 3-5 years, "Sesame Street" was designed to increase knowledge in the areas of: symbolic representation (pre-reading skills), cognitive organization which entails relational concepts, reasoning and problem solving, and the child and his world. This study examined the effects of the program on 5, 6, and 7-year-old children living in isolated communities on the coast of Labrador. Since these children functioned cognitively 1-2 years below their chronological age when compared to urban middle-class children, focus was placed on whether the program could be a valuable learning device for children older than those for which it was designed and who were functioning below average for their ages. Over a three year period, children in grades K-2 were administered the: Wechsler Preschool and Primary Scale of Intelligence, Peabody Picture Vocabulary Test, Illinois Test of Psycholinguistic Abilities, and Criterion Reference Tests. The results showed that though there was an initial gain by those viewing the program, by the end of the second year all groups were functioning at an equal level. Suggestions are made for continued enrichment throughout elementary school rather than a short-term program. (NQ)

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THE EFFECTS OF SESAME STREET IN ISOLATED COMMUNITIES

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ABSTRACT

The purpose of the research is to assess the effects of the television program "Sesame Street". Over a three-year period, a series of tests were administered to children in grades Kindergarten, One and Two in four communities on the coast of Labrador. The results showed that though there was an initial gain by those viewing the program, by the end of the second year all groups were functioning at an equal level. Suggestions are made for continued enrichment throughout elementary school rather than a short-term program.

During recent years there has been increasing stress placed on the importance of early childhood experiences for later cognitive development. As a result, numerous attempts have been made to provide enrichment for young underprivileged children. These attempts have ranged from kindergarten programs of various styles to enrichment through television with such programs as The Electric Company, Mr. Dressup and Sesame Street. The purpose of the present research was to examine the effects of Sesame Street on children living in isolated communities of Labrador.

Sesame Street was originally designed for inner city children in the age range of 3 to 5 years. Four broad areas were described as the educational objectives for the program. These included symbolic representation such as pre-reading skills; cognitive organization which entails relational concepts; reasoning and problem solving; and the child and his world. Sesame Street was designed to increase knowledge in all of these areas.

Bogatz and Ball (1971) have undertaken a comprehensive evaluation of Sesame Street. Their research compared a sample of over 900 3 to 5 year old viewers and nonviewers. The differential effects of the program according to the subject's age, sex, ethnic background and socioeconomic status, were studied. The results of the evaluation indicated that all groups who viewed Sesame Street benefited. In relation to the goal areas tested, learning was highly correlated with viewing time. Generally the high viewers performed better than the

low viewers. This finding holds true across age, sex, geographical location, socioeconomic status, mental age and whether children watched at home or in school. However, it should be noted that some groups of children made greater gains than others. For instance, 3-year-old children gained more than 5-year-old children and disadvantaged more than advantaged. Overall, Sesame Street was considered to be a valuable and effective learning experience.

There have been a number of other studies conducted regarding Sesame Street. Minton (1975) investigated the effects of Sesame Street on readiness in Kindergarten children. He reported that in a comparison of viewers and nonviewers using the Metropolitan Readiness tests consisting of six subtests, there were significant differences between groups only on the Alphabet subtest. Thus there was little benefit to viewers as compared to nonviewers. However, LeMercier and Teasdale (1973) obtained significant differences between high and low viewers on tests measuring five of six goal areas of Sesame Street as well as the PPVT. Other researchers such as Sproull (1973) examined, among other variables, visual attention and humor aroused by Sesame Street.

Other writers have discussed Sesame Street from a more subjective basis. Sedulus (1970) criticized the program for creating passive learners. Holt (1971) found Susan (one of the characters in the program) to be repetitious and condescending. Shayon (1970) and Rosenthal (1970) were critical of the program for stressing cognitive goals to the exclusion

of social goals. Despite this and other criticisms Sesame Street deserves considerable credit for it broke the ground in educational programming and was relatively successful in terms of its stated goals. However, the critics have performed a valuable service in suggesting areas of concern and pointing out that Sesame Street should not necessarily be considered a model for other programs to emulate; rather it is indicative of innovative programming that can be accomplished by television.

The present project extended the research to a sample quite different from previous studies. The sample differs in two distinct ways, geographical location and age. The samples in the present study live in isolated communities on the coast of Labrador. The only method of transportation during the winter months, which may extend from November to June, is bush plane. During the summer months coastal boats travel between communities. The communities are largely made up of subsistence level fishing families and it is common that both the parents and children are involved in the fishery. As employment is seasonal, incomes are small and many of the conveniences of urban living are absent. For instance, most homes do not have central heating, sewage facilities, running water or the many appliances found in Southern Canadian homes. The children tend to have a relatively restricted environment as well. Few have the opportunity to travel outside the local community and there are few books or educational materials in the homes. Further, parents tend to be poorly educated and

do not place a great deal of value on education. In light of this environmental impoverishment the purpose of the present project was to discover whether Sesame Street could be a valuable learning experience for children, from an environment substantially different from that for which the program was designed or whether the program was so alien to the Labrador environment that the children would not benefit from viewing it.

A second major difference between this and previous research is in the age of the sample. Previous research examined the effects of Sesame Street on 3, 4, and 5-year-old children. The present study examines the effects of the program on 5, 6, and 7-year-old children. However, it should be noted that the children in the present sample function cognitively 1 to 2 years below their chronological age when compared to urban middle-class samples. Thus the question being raised is whether Sesame Street could be a valuable learning device for children older than those for which the program was designed and who are functioning below average for their ages.

METHOD

Sample

Three samples of children from four communities on the Labrador coast were examined. Sample 1 came from West Ste. Modeste on the Gulf of St. Lawrence. Broadcast television was available but no control was exercised over viewing.

Sample 2 came from Rigolet on Lake Melville about half way up the coast of Labrador and from Fox Harbour on the southern coast of Labrador. No television was available in either place. Sample 3 came from Cartwright on the southern Labrador coast. There was no broadcast television available. However, the Kindergarten and Grade 1 children viewed Sesame Street one hour per day during the school year by means of a VTR unit. The program was part of the regular curriculum with the teacher interacting with the children and causing them to interact with the program and one another. These are relatively ideal conditions as the Bogatz and Ball (1971) research indicated that children who watch Sesame Street with an adult interacting with them gain more than children who watch it without an adult present.

Tests

The children in all communities were administered the following tests: the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), the Peabody Picture Vocabulary Test (PPVT), the Illinois Test of Psycholinguistic Abilities (ITPA) and the Criterion Reference Tests (CRT). The CRT is a test designed specifically to measure the objectives of Sesame Street and was provided by the Children's Television Workshop, the producers of Sesame Street. The tests were all administered individually during school hours by qualified testers.

Analysis

The data were subjected to an analysis of variance with 47 dependent variables and community, grade and sex as independent variables. As the same children were tested over a period of 3 years, it was necessary to utilize a repeated measures design. Figure 1 presents a schemata of the analysis. It is recognized that this is only an approximate analysis as it is based on cell means rather than the least squares

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Insert Figure 1 about here

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method. At present our computing facility does not have a multivariate program with a repeated measures design available. However, contact has been established with a group who is familiar with a multivariate analysis with a repeated measures design and it is planned to analyze the data by this method once the information on programming is received.

The dependent variables analyzed were as follows: 24 were the subtests of the CRT, 12 were subtests of the ITPA, 10 were subtests of the WPPSI, and the last was the PPVT. It should be noted that raw scores were used in the analysis as scaled scores for the standardized tests are obviously based on samples that are significantly different from the Labrador coastal sample.

RESULTS AND DISCUSSION

Although the research is most interested in community differences it is worthwhile to note that there were differences in the dependent variables on grade and sex as well. Of 47 variables there were significant differences by grade for all but letter matching, number matching and recognizing figures, all CRT subtests. The grade difference was expected as children score better on most tests as they progress in school. The reason for lack of differences on the three subtests is that the difficulty level was not sufficient to discriminate between grades. Between Kindergarten and Grade 1 there were sex differences favoring the girls on two CRT subtests, sentences and property identification and favoring the boys on mazes. Between Grade 1 and Grade 2 the boys scored highest on auditory reception and mazes. There were no other significant sex effects.

Table 1 presents the 18 variables on which there were significant community effects between Kindergarten and Grade 1. As the analysis is an approximate analysis no multiple

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Insert Table 1 about here

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comparison tests were conducted. The asterisks indicate the variables on which the children who viewed Sesame Street scored the highest. Of these 7 are subtests from the CRT. It was expected that Sesame Street would encourage learning in the

areas that are stressed in the program. The fact that these differences occur only on 7 of 24 subtests of the CRT was somewhat surprising. It was felt that more benefit would accrue to the children who viewed the program. It is worthwhile to note, however, that the other two communities scored significantly higher than the group who viewed Sesame Street on only two subtests of the CRT, indicating that there is some advantages for the group who viewed the program. In terms of gains in other areas it appears that there is little generalization to either language skills as measured by the ITPA or intellectual skills as measured by the WPPSI. This finding contradicts previous research which has reported improvement in intellectual and linguistic functioning in children who viewed Sesame Street as compared to nonviewing or restricted viewing samples. It is important to recollect that the children did view the show under relatively ideal circumstances in which they were encouraged to interact with the characters on the show by their classroom teacher. Thus, if gains from the show were to generalize to intellectual and linguistic areas it is reasonable to assume that they should have occurred in this instance. This lack of gain may be due to the fact that Sesame Street was not designed for children from a subcultural group such as found in Labrador and as a result they do not make the gains reported in other groups.

Differences for the Grades 1 to 2 sample are presented in Table 2. Of the 23 subtests there were only 8 that the

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Insert Table 2 about here

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groups differed significantly on. Of the 8 the group who viewed Sesame Street in Cartwright scored highest on 3 subtests. It should be noted that after the first year the CRT was not given to the Grade 2 sample as a ceiling effect occurred. That is, the majority of the Grade 2 students scored at the top of the scale on the CRT. Thus it appears that in communities where children do not view Sesame Street the school program makes up for deficiencies in areas stressed in the program by Grade 2.

There were as well as the significant main effects a number of significant interactions. Since the research is particularly interested in community (equated with viewing or nonviewing of Sesame Street) differences only the community by sex, and community by grade interactions will be reported. There were community by sex interactions for five subtests for the Kindergarten to Grade 1 sample only. These are presented in Table 3.

Insert Table 3 about here

In all but double classification the interaction is probably due to the fact that in Rigolet-Fox Harbour the male sample scores higher whereas for the other variables the female sample scores higher.

There were 11 variables that showed a significant community by grade interaction between Kindergarten and Grade 1. and 3 between Grade 1 and Grade 2. These are presented in Table 4.

Insert Table 4 about here

What is interesting is that the effects of community are inconsistent across variables. That is, the pattern of differences does not consistently favor the sample who viewed Sesame Street. As there is no consistent pattern it is possible that these significant interactions may in part be accounted for by random results. However, it will only be possible to assess this once the multivariate analysis, repeated measures design becomes available.

Overall it can be concluded that the children who see Sesame Street in school show initial but short lasting benefits. That is, by the end of Grade 2 the children from all samples are functioning at similar levels. The effect of Sesame Street is not sufficient to ameliorate the intense environmental isolation and poverty in coastal communities of Labrador. This research points out the necessity of continuing enrichment. It is not sufficient to enrich the environment of these disadvantaged children for only a 1 or 2 year period and expect long lasting changes in ability to take place. Rather, enrichment in the school system must occur at least through the elementary grades and perhaps longer. What is

necessary is to completely revise the curriculum for low SES disadvantaged children so that school becomes more relevant to the needs and existing abilities of the children. It is only through major, long term changes in the present system that educators can hope to improve the quality of education for these children.

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TABLE 1

Variables that differed significantly from Kindergarten to Grade 1

COMMUNITY

Variable	West Ste. Modeste		Cartwright		Rigolet/Fox Harbour		F
	X	SD	X	SD	X	SD	
*Produce Letter Sounds	1.22	1.46	2.93	1.39	2.36	1.46	21.20**
*Beginning Sounds	1.10	1.41	2.43	1.68	2.11	1.65	12.23**
*Reading Words	1.48	1.06	2.10	1.10	2.07	1.09	6.03**
*Word List	1.76	1.85	2.60	2.21	2.59	2.56	4.48*
Sentence	3.36	2.06	4.05	1.95	4.30	1.98	5.83**
Recitation between Numbers	4.36	2.54	4.55	2.53	5.57	1.53	4.87*
*Label Figures	2.21	1.23	3.07	1.16	2.30	0.98	5.64**
*Embedded Figures	2.85	0.97	3.43	0.86	3.02	0.98	4.04*
*Inclusion Differentiation	3.45	1.52	3.67	1.26	2.73	1.39	5.38**
Auditory Reception	15.41	5.69	18.14	5.75	19.02	5.60	4.41*
Visual Reception	12.72	4.97	15.26	5.96	16.23	5.30	4.97**
Auditory Sequential Memory	13.86	7.11	22.57	7.45	22.68	7.28	3.53*
Visual Closure	16.59	5.76	17.43	4.80	21.05	5.29	9.72**
*Verbal Expression	11.09	4.83	14.69	6.02	13.21	4.71	6.11**
*Grammatic Closure	9.93	4.53	12.71	5.38	12.07	5.78	3.95*
Sound Blending	11.16	5.40	16.07	7.35	16.25	7.95	8.68**
Mazes	12.09	6.04	15.67	6.89	14.55	7.38	3.36*
P.P.V.T.	40.76	9.08	39.48	14.03	44.84	7.90	3.58*

* $p \leq .05$

** $p \leq .01$

TABLE 2

Variables that differed significantly from Grade 1-2

Variable	COMMUNITY						F
	West Ste.Modeste		Cartwright		Rigolet/Fox Harbour		
	X	SD	X	SD	X	SD	
*Auditory Reception	21.08	4.72	23.06	6.88	18.61	5.13	6.80**
Visual Reception	16.62	4.49	17.71	5.49	20.04	5.68	4.03*
Auditory Association	18.48	4.11	20.67	4.43	21.36	4.60	4.82*
*Auditory Sequential Memory	22.62	7.06	29.17	8.05	26.50	9.14	4.87*
*Grammatic Closure	12.63	4.34	17.90	5.05	16.21	4.83	12.72**
Similarities	12.23	4.20	13.64	4.22	15.04	3.72	4.33*
Geometric Design	17.87	5.54	20.50	5.63	21.64	3.94	4.97**
P.P.V.T.	44.27	9.35	44.42	14.98	50.39	5.96	3.47*

* $p \leq .05$

** $p \leq .01$

TABLE 3

Community by Sex Interactions

Variable	COMMUNITY						
	West Ste. Modeste		Cartwright		Rigolet/Fox Harbour		F
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Letter Matching							
1[a]	4.00	.00	4.00	.00	3.80	0.89	4.03*
2	3.46	1.06	3.95	.22	3.88	0.45	
Label Letters							
1	7.21	1.92	6.64	2.32	6.75	2.15	3.46*
2	5.21	2.72	6.40	2.01	6.92	1.61	
Beginning Sounds							
1	1.38	1.50	2.55	1.63	1.65	1.63	3.68*
2	0.71	1.20	2.30	1.78	2.50	1.59	
Recitation of Alphabet							
1	24.62	4.68	23.09	6.23	23.25	7.07	3.41*
2	19.46	8.26	22.80	7.11	25.00	2.43	
Double Classification							
1	2.59	1.54	2.00	1.23	2.40	1.79	3.87*
2	1.67	1.13	2.90	1.41	2.21	1.18	

* $p \leq .05$

[a] 1 = female
2 = male

TABLE 4

Community by Grade Interactions

Variable		COMMUNITY West Ste.Modeste X̄	SD	Cartwright X̄	SD	Rigolet/Fox Harbour X̄	SD	F
Word List	G_K	0.66	0.86	0.95	1.28	0.77	1.66	3.38*
	G_1	2.86	1.92	4.24	1.64	4.41	1.94	
Conservation	G_K	5.76	1.02	5.95	0.81	6.23	0.75	
	G_1	6.55	0.63	6.86	0.36	6.27	1.55	3.51*
Recitation between Numbers	G_K	3.00	2.87	3.38	2.92	5.41	1.76	5.91**
	G_1	5.72	1.03	5.71	1.31	5.73	1.28	
Inclusion Differentiation	G_K	2.79	1.47	3.52	1.44	2.77	1.34	4.13*
	G_1	4.10	1.29	3.81	1.08	2.68	1.46	
Auditory Reception	G_K	12.69	5.11	15.33	4.19	18.59	5.58	3.69*
	G_1	18.14	4.94	20.95	5.80	19.46	5.72	
Sound Blending	G_K	9.66	4.39	11.24	4.66	11.73	6.30	6.60**
	G_1	12.66	5.96	20.91	6.33	20.77	6.85	
Vocabulary	G_K	9.72	4.52	9.19	4.05	11.64	6.79	4.10*
	G_1	15.86	5.04	19.57	6.49	15.55	9.46	
Similarities	G_K	8.00	3.58	6.52	3.92	9.91	4.09	4.35*
	G_1	13.93	3.63	12.62	3.76	12.86	5.59	
Animal House	G_K	33.83	13.47	35.52	15.17	47.73	9.67	6.67**
	G_1	51.03	7.52	49.38	12.60	48.86	20.22	

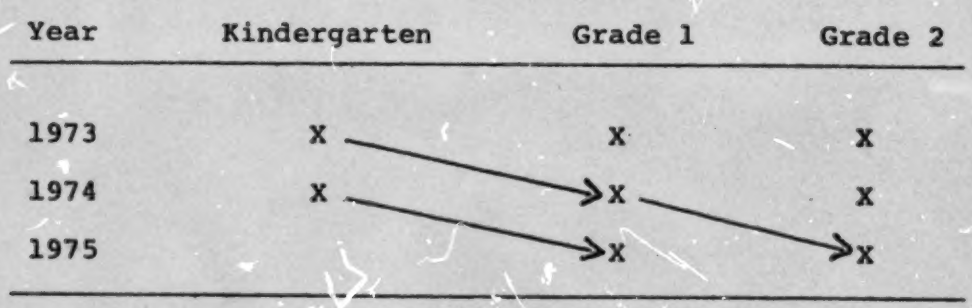
TABLE 4 (continued)

Community by Grade Interactions

Variable	COMMUNITY						F
	West Ste.Modeste		Cartwright		Rigolet/Fox Harbour		
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Geometric Design							
G_K	12.17	3.7[illegible]	12.33	5.31	15.86	6.70	3.72*
G_1	16.52	5.19	19.76	4.39	16.59	8.79	
Block Design							
G_K	9.97	3.94	9.67	4.43	11.82	3.92	4.91*
G_1	14.41	3.75	14.19	4.14	12.14	6.51	
Vocabulary							
G_1	13.27	5.24	16.27	5.58	11.64	5.54	3.25*
G_2	19.50	5.32	19.92	6.54	20.07	5.80	
Comprehension							
G_1	13.47	4.28	14.85	3.45	12.14	4.17	6.62**
G_2	17.57	5.04	16.92	5.51	20.50	3.96	
Block Design							
G_1	13.87	4.13	15.19	3.36	13.14	4.96	3.29*
G_2	14.67	3.89	15.[illegible]	4.65	15.93	4.48	

* $p \leq .05$

** $p \leq .01$



X indicates the samples tested each year. The 1975 Kindergarten classes could not be included in the analysis as West Ste. Modeste did not have a Kindergarten class as no teacher was available.

The arrows indicate the samples that were included in the analysis.

FIGURE 1. Schemata of Analysis